

What is claimed is:

1. A detector comprising:
 - a first wafer having a cathode;
 - a second wafer having a chamber, formed on the first wafer; and
 - a third wafer, having an anode, formed on the second wafer.
2. The detector of claim 1, wherein the chamber is sealed from an environment external to the chamber.
3. The detector of claim 2, wherein the third wafer is transparent to detectable light.
4. The detector of claim 3, wherein the chamber contains a gas.
5. The detector of claim 4, wherein the gas is a mixture of H₂ and Ne.
6. The detector of claim 5, wherein the distance between

the anode and cathode is between 25 microns and 75 microns.

7. The detector of claim 5, further comprising a eutectic bond between the first and second wafers.

8. The detector of claim 7, further comprising a eutectic bond the second and third wafers.

9. The detector of claim 8, wherein the first, second and third wafers comprise silica.

10. The detector of claim 9, wherein:

the first wafer has a conductor connected to the
cathode for a connection external to the
detector; and

the third wafer has a conductor connected to the anode
for a connection external to the detector.

11. The detector of claim 10, wherein the anode is a grid.

12. The detector of claim 11, wherein:

the anode comprises a conductive metal; and

the cathode comprises a conductive metal.

13. A method of making a detector, comprising:
 - providing a first wafer;
 - forming a cathode on the first wafer;
 - providing a second wafer;
 - forming a chamber in the second wafer;
 - providing a third wafer;
 - forming an anode on the third wafer;
 - bonding the second wafer to the first wafer; and
 - bonding the third wafer to the second wafer; and
 - wherein the anode and cathode are situated at opposite ends of the chamber, respectively.
14. The method of claim 13, wherein:
 - the first, second and third wafers comprise silicon;
 - and
 - the bonding between the first and second wafers and between the second and third wafers is eutectic.
15. The method of claim 14, wherein
 - the chamber is a sealed container; and

the chamber contains a gas.

16. The method of claim 15, further comprising:
providing an connection external of the detector to
the cathode; and
providing a connection external of the detector to the
anode.
17. The method of claim 16, wherein the gas comprises Ne.
18. The method of claim 17, wherein:
the anode has a plurality of openings; and
the anode wafer is transparent to light.
19. The method of claim 18, wherein the detector may
detect UV light.
20. Means for detecting comprising:
means for emitting electrons;
means for collecting electrons; and
means for containing a gas situated between the means
for emitting electrons and the means for

collecting electrons; and
wherein the means for emitting electrons, the means
for collecting electrons and the means for
containing a gas are situated within a wafer
structure.

21. The means of claim 20, wherein light impinging the gas
may cause a current flow between the means for emitting
electrons and the means for collecting electrons.

22. The means of claim 20, wherein:
the gas comprises neon; and
the light is UV.

23. A sensor comprising:
a cathode wafer;
a cavity wafer bonded to the cathode wafer; and
an anode wafer bonded to the cavity wafer; and
wherein:
the cavity wafer has a cavity having first and second
openings sealed by the cathode wafer and the
anode wafer, respectively.

24. The sensor of claim 23, further comprising:
a cathode situated on the cathode wafer proximate to
the first opening of the cavity; and
an anode situated on the anode wafer proximate to the
second opening of the cavity.
25. The sensor of claim 24, wherein the cavity has a
light-admissible end.
26. The sensor of claim 25, wherein the cavity contains a
gas.
27. The sensor of claim 26, further comprising electrical
connections to the cathode and the anode.
28. The sensor of claim 27, wherein:
the wafers comprise silica; and
the wafers are bonded with a eutectic material.
29. The sensor of claim 28, wherein the gas comprises
neon.

30. The sensor of claim 29, wherein:

the gas further comprises hydrogen; and

the portion of neon in the gas is greater than fifty percent.

31. The sensor of claim 24, wherein the cathode wafer, the anode wafer and cavity wafer comprise a plurality of cathodes, anodes and cavities, respectively, that forms a plurality of individual sensors.

32. The sensor of claim 31, wherein the bonded cathode wafer, the anode wafer and cavity wafer are cut into individual chips.